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Fig. 1

#### Amino Acid Sequence of the Composite HCVHC-J1/CDC/CHI

```
10
                                                                         15
  1 Met Ser Thr Ile Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr
 16 Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile
 31 Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly
 46 Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly
 61 Arg Arg Glm Pro Ile Pro Lys Val Arg Arg Pro Glu Gly Arg Thr
 76 Trp Ala Glm Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asm Glu Gly
 91 Cys Gly Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly Ser Arg Pro
106 Ser Trp Gly Pro Thr Asp Pro Arg Arg Arg Ser Arg Asn Leu Gly
121 Lys Val lie Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu Met Gly
136 Tyr Ile Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg Ala
151 Leu Ala His Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala
166 Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala
181 Leu Leu Ser Cys Leu Thr Val Pro Ala Ser Ala Tyr Gln Val Arg
196 Asn Ser Thr Gly Leu Tyr His Val Thr Asn Asp Cys Pro Asn Ser
211 Ser Ile Val Tyr Glu Ala Eis Asp Ala Ile Leu His Thr Pro Gly
226 Cys Val Pro Cys Val Arg Glu Gly Asn Val Ser Arg Cys Trp Val 241 Ala Met Thr Pro Thr Val Ala Thr Arg Asp Gly Lys Leu Pro Ala
256 Thr Gln Leu Arg Arg His Ile Asp Leu Leu Val Gly Ser Ala Thr
271 Leu Cvs Ser Ala Leu Tyr Val Glv Aso Leu Cvs Glv Ser Val Phe
286 Leu Ile Gly Gln Leu Phe Thr Phe Ser Pro Arg Arg His Trp Thr
301 Thr Gln Gly Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr Gly
316 His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Ala
331 Ala Leu Val Met Ala Gln Leu Leu Arg Ile Pro Gln Ala Ile Leu
346 Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly Ile Ala
361 Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val Leu Val Val Leu
376 Leu Leu Phe Ala Gly Val Asp Ala Glu Thr Ile Val Ser Gly Gly
391 Gln Ala Ala Arg Ala Met Ser Gly Leu Val Ser Leu Phe Thr Pro 406 Gly Ala Lys Gln Asn Ile Gln Leu Ile Asn Thr Asn Gly Ser Trp
421 His Ile Asn Ser Thr Ala Leu Asn Cys Asn Glu Ser Leu Asn Thr
436 Gly Trp Leu Ala Gly Leu Ile Tyr Gln His Lys Phe Asn Ser Ser
451 Gly Cys Pro Glu Arg Leu Ala Ser Cys Arg Pro Leu Thr Asp Phe
466 Asp Gln Gly Trp Glv Pro Ile Ser Tvr Ala Asn Glv Ser Glv Pro
481 Asp Gln Arg Pro Tyr Cys Trp His Tyr Pro Pro Lys Pro Cys Gly
496 Ile Val Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
511 Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro
526 Thr Tyr Ser Trp Gly Glu Ash Asp Thr Asp Val Phe Val Leu Ash
541 Asn Thr Arg Pro Pro Leu Gly Asn Trp Phe Gly Cvs Thr Trp Met 556 Asn Ser Thr Gly Phe Thr Lys Val Cys Gly Ala Pro Pro Cys Val
571 Ile Gly Gly Ala Gly Asn Asn Thr Leu His Cys Pro Thr Asp Cys
586 Phe Arg Lys His Pro Asp Ala Thr Tyr Ser Arg Cys Gly Ser Gly 601 Pro Trp Ile Thr Pro Arg Cys Leu Val Asp Tyr Pro Tyr Arg Leu
616 Trp His Tyr Pro Cys Thr Ile Asn Tyr Thr Ile Phe Lys Ile Arg
631 Met Tyr Val Gly Gly Val Glu His Arg Leu Glu Ala Ala Cys Asn
646 Trp Thr Arg Gly Glu Arg Cys Asp Leu Glu Asp Arg Asp Arg Ser 661 Glu Leu Ser Pro Leu Leu Leu Thr Thr Gln Trp Gln Val Leu
676 Pro Cys Ser Phe Thr Thr Leu Pro Ala Leu Ser Thr Gly Leu Ile
691 His Leu His Gln Asn Ile Val Asp Val Gln Tyr Leu Tyr Gly Val
```

## Fig. 1

#### Continued

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706 Gly Ser Ser Ile Ala Ser Trp Ala Ile Lys Trp Glu Tyr Val Val
   721 Leu Leu Phe Leu Leu Leu Ala Asp Ala Arg Val Cys Ser Cys Leu
   736 Trp Met Met Leu Leu Ile Ser Gla Ala Glu Ala Ala Leu Glu Asa
   751 Leu Val Ile Leu Asn Ala Ala Ser Leu Ala Gly Thr His Gly Leu
   766 Val Ser Phe Leu Val Phe Phe Cys Phe Ala Trp Tyr Leu Lys Gly
   781 Lys Trp Val Pro Gly Ala Val Tyr Thr Phe Tyr Gly Met Trp Pro
   796 Leu Leu Leu Leu Leu Ala Leu Pro Gln Arg Ala Tyr Ala Leu
   811 Asp Thr Glu Val Ala Ala Ser Cys Gly Gly Val Val Leu Val Gly
   826 Leu Met Ala Leu Thr Leu Ser Pro Tyr Tyr Lys Arg Tyr Ile Ser
   841 Trp Cys Leu Trp Trp Leu Gln Tyr Phe Leu Thr Arg Val Glu Ala 856 Gln Leu His Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg
   871 Asp Ala Val Ile Leu Leu Met Cys Ala Val His Pro Thr Leu Val
   886 Phe Asp Ile Thr Lys Leu Leu Leu Ala Val Phe Gly Pro Leu Trp
   901 Ile Leu Asp Ala Ser Leu Leu Lys Val Pro Tyr Phe Val Arg Val
   916 Gln Gly Leu Leu Arg Phe Cys Ala Leu Ala Arg Lys Met Ile Gly
   931 Gly His Tyr Val Gln Met Val Ile Ile Lys Leu Gly Ala Leu Thr
   946 Gly Thr Tyr Val Tyr Asn His Leu Thr Pro Leu Arg Asp Trp Ala
   961 His Asn Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro Val Val
   976 Phe Ser Gln Met Glu Thr Lys Leu Ile Thr Trp Gly Ala Asp Thr
   991 Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg
  1006 Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser 1021 Lys Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln
  1036 Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg
  1051 Asp Lys Asn Gln Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala
  1066 Ala Gln Thr Phe Leu Ala Thr Cys Ile Asn Gly Val Cys Trp Thr
 1081 Val Tyr His Gly Ala Gly Thr Arg Thr Ile Ala Ser Pro Lys Gly 1096 Pro Val Ile Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly
 1111 Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr Pro Cys Thr Cys
- 1126 Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile
1141 Pro Val Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro
1156 Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu
 1171 Cys Pro Ala Gly His Ala Val Gly Ile Phe Arg Ala Ala Val Cys
 1186 Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn
 1201 Leu Glu Thr Thr Met Arg Ser Pro Val Phe Trp Asp Asn Ser Ser
 1216 Pro Pro Val Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala
 1231 Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala
 1246 Ala Gin Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala
1261 Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Ile Asp
1276 Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro
1291 Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys
1306 Ser Gly Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser
1321 Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln 1336 Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr 1351 Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile Glu Glu Val 1366 Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile 1381 Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His 1366 Sar Tyr Tyr Gly Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His 1366 Sar Tyr Tyr Cyc Acr Gly Is In Inches
 1396 Ser Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu
 1411 Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Wal Ser Val
 1426 Ile Pro Thr Ser Gly Asp Val Val Val Ala Thr Asp Ala Leu
 1441 Met Thr Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn
 1456 Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe
 1471 The lie Glu The Ile The Leu Pro Gln Asp Ala Val Ser Arg The
 1486 Gln Arg Arg Gly Arg Thr Gly Arg Gly Lvs Pro Gly Ile Tyr Arg
1501 Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser
 1516 Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu
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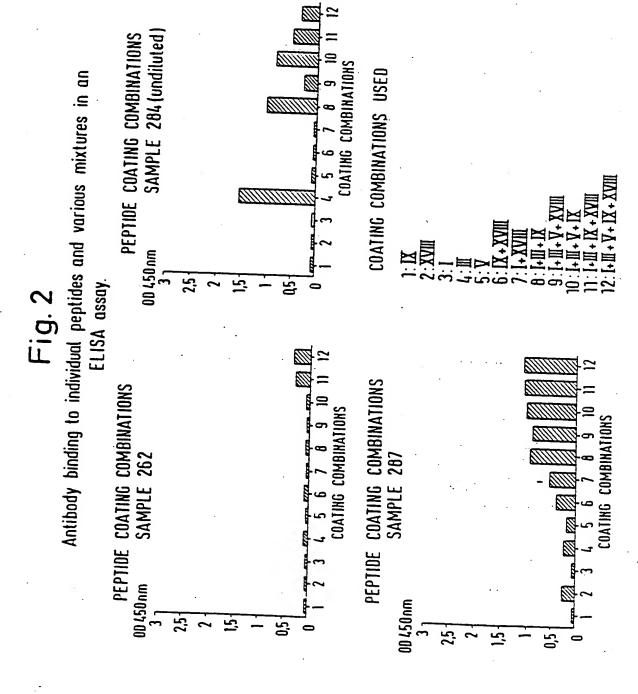
## Fig. 1

#### Continued

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1531 Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr
 1546 Pro Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly
 1561 Val Phe Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln
 1576 Thr Lys Gly Ser Gly Glu Asn Leu Pro Tyr Leu Val Ala Tyr Gln
 1591 Ala Thr Val Cys Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp
 1606 Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro Thr Leu Eis Gly
 1621 Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln Asn Glu Ile
 1636 Thr Leu Thr His Pro Val Thr Lys Tyr Ile Met Thr Cys Met Ser
 1651 Ala Asp Leu Glu Val Val Thr Ser Thr Trp Val Leu Val Gly Gly 1666 Val Leu Ala Ala Leu Ala Ala Tyr Cys Leu Ser Thr Gly Cys Val
 1681 Val Ile Val Gly Arg Val Val Leu Ser Gly Lys Pro Ala Ile Ile
1696 Pro Asp Arg Glu Val Leu Tyr Arg Glu Phe Asp Glu Met Glu Glu
 1711 Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu Ala
 1726 Glu Gln Phe Lys Gln Lys Ala Leu Gly Leu Leu Gln Thr Ala Ser
 1741 Arg Gln Ala Glu Val Ile Ala Pro Ala Val Gln Thr Asn Trp Gln
  1756 Lys Leu Glu Thr Phe Trp Ala Lys His Met Trp Asn Phe Ile Ser
 1771 Gly Ile Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro
  1786 Ala Ile Ala Ser Leu Met Ala Phe Thr Ala Ala Val Thr Ser Pro
 1801 Leu Thr Thr Ser Gln Thr Leu Leu Phe Asn Ile Leu Gly Gly Trp
 1816 Val Ala Ala Gln Leu Ala Ala Pro Gly Ala Ala Thr Ala Phe Val
 1831 Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val Gly Leu Gly
 1846 Lys Val Leu Ile Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala
 1861 Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser
 1876 Thr Glu Asp Leu Val Asm Leu Leu Pro Ala Ile Leu Ser Pro Gly
 1891 Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg Eis
 1906 Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile
 1921 Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val
 1936 Pro Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser 1951 Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser
 1966 Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
1981 Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu
 1996 Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser 2011 Cys Gln Arg Gly Tyr Lys Gly Val Trp Arg Val Asp Gly Ile Met 2026 His Thr Arg Cys Eis Cys Gly Ala Glu Ile Thr Gly His Val Lys
 2041 Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met 2056 Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys
 2071 Thr Arg Leu Pro Ala Pro Asn Tyr Thr Phe Ala Leu Tro Arg Val
 2086 Ser Ala Glu Glu Tyr Val Glu Ile Arg Gln Val Gly Asp Phe His
 2101 Tyr Val Thr Gly Met Thr Thr Asp Asn Leu Lys Cys Pro Cys Gln
 2116 Val Pro Ser Pro Glu Phe Phe Thr Glu Leu Asp Gly Val Arg Leu
 2131 His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu Arg Glu Glu Val
2146 Ser Phe Arg Val Gly Leu His Glu Tvr Pro Val Gly Ser Gln Leu 2161 Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser Met Leu
 2176 Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg Leu
 2191 Ala Arg Gly Ser Pro Pro Ser Val Ala Ser Ser Ser Ala Ser Gln
 2206 Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp
 2221 Ser Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln
 2236 Glu Met Gly Gly Asn Ile Thr Arg Val Glu Ser Glu Asn Lys Val 2251 Val Ile Leu Asp Ser Phe Asp Pro Leu Val Ala Glu Glu Asp Glu
 2256 Arg Glu Ile Ser Val Pro Ala Glu Ile Leu Arg Lys Ser Arg Arg
 2281 Phe Ala Gln Ala Leu Pro Val Trp-Ala Arg Pro Asp Tyr Asn Pro
 2296 Pro Leu Val Glu Thr Trp Lys Lys Pro Asp Tyr Glu Pro Pro Val
 2311 Val His Gly Cys Pro Leu Pro Pro Pro Lys Ser Pro Pro Val Pro 2326 Pro Pro Arg Lys Lys Arg Thr Val Val Leu Thr Glu Ser Thr Leu
 2341 Ser Thr Ala Leu Ala Glu Leu Ala Thr Arg Ser Phe Gly Ser Ser
```

# Fig. 1 Continued

2356 Ser Thr Ser Gly Ile Thr Gly Asp Asn Thr Thr Thr Ser Ser Glu 2371 Pro Ala Pro Ser Gly Cys Pro Pro Asp Ser Asp Ala Glu Ser Tyr 2386 Ser Ser Met Pro Pro Leu Glu Gly Glu Pro Gly Asp Pro Asp Leu 2401 Ser Asp Gly Ser Trp Ser Thr Val Ser Ser Glu Ala Asn Ala Glu 2416 Asp Val Val Cys Cys Ser Met Ser Tyr Ser Trp Thr Gly Ala Cys 2431 Val Thr Pro Cys Ala Ala Glu Glu Gln Lys Leu Pro Ile Asn Ala 2446 Leu Ser Asn Ser Leu Leu Arg His His Asn Leu Val Tyr Ser Thr 2461 Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val Thr Phe Asp 2476 Arg Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu 2491 Vai Lys Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val 2506 Glu Glu Ala Cys Ser Leu Thr Pro Pro Bis Ser Ala Lys Ser Lys 2521 Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys Eis Ala Arg Lys Ala 2536 Val Thr His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Asn 2551 Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe 2566 Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile 2581 Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met Ala Leu 2596 Tyr Asp Val Val Thr Lys Leu Pro Leu Ala Val Met Gly Ser Ser 2611 Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val 2626 Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp 2636 Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg 2631 Val Val Thr Glu Ser Asp Ile Arg Thr 2631 Val Val Thr Glu Ser Asp Ile Arg Thr 2631 Val Val Thr Glu Ser Asp Ile Arg Thr Cys Cys Asp Leu Asp Pro Gln Ala Arg 2671 Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro 2686 Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg 2701 Ala Ser Gly Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys 2716 Tyr Ile Lys Ala Arg Ala Ala Cys Arg Ala Ala Gly Leu Gln Asp 2731 Cys Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Cys Glu 2746 Ser Ala Gly Val Gln Glu Asp Ala Ala Ser Leu Arg Ala Phe Thr 2761 Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Gln 2776 Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr 2806 Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala 2821 Arg Eis Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe 2836 Ala Pro Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe 2851 Ser Val Leu Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asp Cys 2866 Glu Ile Tyr Gly Ala Cys Tyr Ser Ile Glu Pro Leu Asp Leu Pro 2881 Pro Ile Ile Gla Arg Leu Gly Cys Pro Glu Arg Leu Ala Ser





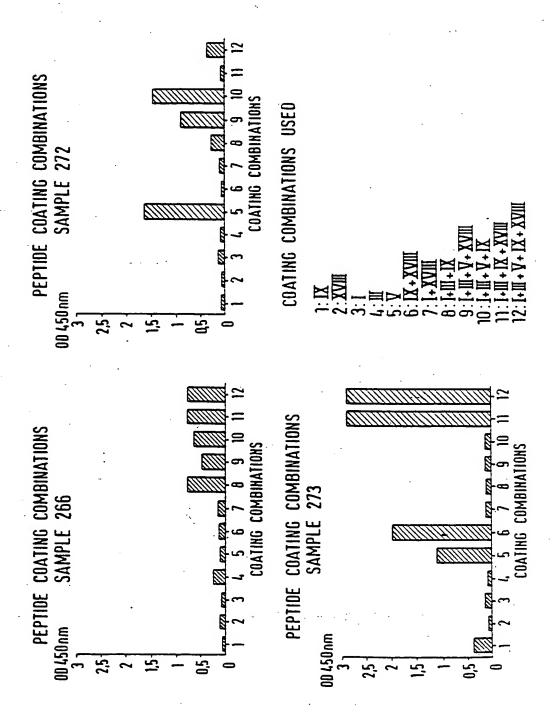


Fig. 2 Continued

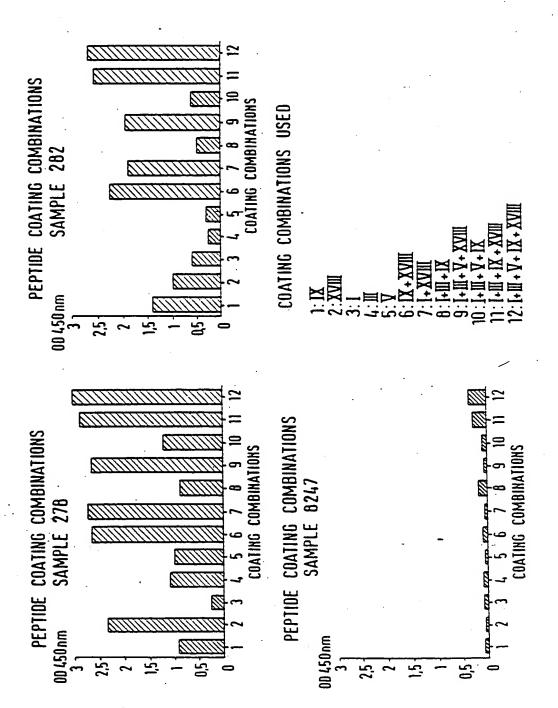


Fig. 2 Continued

